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October 30, 2006

BY ELECTRONIC FILING

Ms. Marlene Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: WC Docket No. 02-60

Dear Ms. Dortch:

Please find attached the *Petition for Reconsideration or, in the Alternative, Clarification* of National LambdaRail, Inc. regarding the Commission's Order (FCC 06-144), which was released on September 29, 2006 in the above-captioned proceeding.

Should any questions arise concerning this matter, please communicate directly with the undersigned.

Respectfully submitted,

NATIONAL LAMBDA RAIL, INC.



Randall B. Lowe

cc.: Best Copy and Printing, Inc.

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
)	
Rural Health Care Support Mechanism)	WC Docket No. 02-60
)	

Petition for Reconsideration or, in the Alternative, Clarification

National LambdaRail, Inc. (“NLR”), by and through its attorney, and pursuant to Section 1.106 of the Commission’s Rules (47 C.F.R. §1.106 (2005)), hereby petitions the Commission to reconsider its Order (FCC 06-144) that was released in the above-captioned matter on September 29, 2006 (“Order”). In support hereof, NLR respectfully states¹:

Introduction

1. NLR is a not-for-profit organization that was incorporated to advance and serve the research, clinical and educational goals of its members and other institutions through its dedicated, nationwide, advanced network infrastructure² that is connected to regional

¹ Up to now, NLR has not been a party to this Docket but, as shown herein, NLR’s interests are adversely affected by the Order. (Indeed, NLR believes that the Order adversely affects rural health care.) Also, it was not possible for NLR to participate in this Docket on the matter presented by this Petition because the pilot program and the funding of connections only to Internet2 that are the subject of the Order was first established by the Order. In other words, NLR did not have an opportunity to present the matters in this Petition until the Order was released. Regardless, NLR believes that the Commission should consider this Petition because it is in the public interest to do so.

² As stated at NLR’s Web site: “The foundation of the NLR infrastructure is a dense wave division multiplexing (DWDM)-based national optical footprint using Cisco Systems’ 15808 and 15454 optical electronic systems, with a maximum capacity of 40 and 32 wavelengths per fiber pair respectively. Each wavelength can support transmission

(broadband) optical networks (“RONs”).³

2. Unlike a network of leased, finished and managed capacity provided by an underlying carrier, NLR’s network is owned, managed and controlled by its members who are members of the research and education community.⁴ As a result, NLR is not constrained by third-party rules. Instead, NLR members determine appropriate uses, applications and services for the network.

3. Thus, NLR is able to provide users with multiple networking capabilities (including shared networks, private networks, research networks, production networks and experimental networks) and comprehensive sets of services that are physically and operationally independent from one another but are on the same nationwide optical fiber footprint.

4. From “best effort” networks for general daily use, such as telehealth, to “deterministic” networks for very large data-intensive science projects, to “breakable” networks for network research, users of NLR can tailor NLR’s resources and services to meet their application requirements – whether placing equipment at collocation places, acquiring fiber for network research, provisioning a 10 Gigabit wavelength for big science projects or accessing commodity-based Internet services. Users can also create, deploy and manage their own leading-edge capabilities over NLR or let NLR operate and manage services for them.

5. The creation and structure of NLR is premised on connections to NLR’s network by RONs that are also owned, managed and controlled by members of the research and education

at 10 billion bits per second (10 Gbps).” See <http://www.nlr.net/services/infrastructure.php>. Attachment A is a map of NLR’s nationwide, dedicated backbone.

³For a complete description of NLR, see <http://www.nlr.net/>

⁴See <http://www.nlr.net/about/members.php> for a list of NLR’s members.

community who are either NLR members or who are participants in one of the RONS.⁵ NLR provides the national backbone, or wide-area network component, of an end-to-end service, that is connected to a RON which, in turn, is connected to an individual user, such as a health care provider.⁶

6. For instance, Congressman Boucher, in a letter to Chairman Martin in this Docket dated May 4, 2005, addressed the benefits of telehealth in rural areas. In doing so, he provided an example from his district in Southwest Virginia of rural health care providers who are connected to the University of Virginia's Health Science Center which, in turn, is connected to Network Virginia. Network Virginia, as described by Congressman Boucher, is "the asynchronous transfer mode network created and administered by Virginia Tech." Virginia Tech is a member of NLR. Network Virginia is a RON that is connected to NLR.⁷

7. Based on the foregoing, it is clear that NLR has a stake in the outcome of the Order which, as shown below, adversely affects NLR and rural health care.

The Order

8. In the Order, the Commission noted that the rural health care mechanism "continues to be greatly underutilized" despite the Commission's modifications to the program. Although the Commission referred to "a number of factors that may explain the underutilization," it specifically referenced the lack of access to broadband facilities, including a dedicated broadband network. Order at para. 8. As a result, the Commission ordered "a pilot

⁵ The members who own and govern NLR own and operate 21 RONS. RONS provide the facilities and technical direction necessary to guarantee end-to-end interconnectivity and interoperability. They also support the advanced applications of their respective communities.

⁶ Attachment B is a sample list of health care provider connections to NLR.

⁷ See Attachment C for a map of this networking.

program to examine how the rural health care (RHC) funding mechanism can be used to enhance public and non-profit health care providers' access to advanced telecommunications and information services." *Id.* at para. 1.

9. Continuing, the Commission stated that "the pilot program will provide funding to support the construction of state or regional broadband networks and services provided over those networks. These networks will be designed to bring the benefits of innovative telehealth and, in particular, telemedicine services to those areas of the country where the need for those benefits is most acute." *Id.* (Footnote omitted.)

10. The Commission also ordered that, in addition to funding the construction of state or regional broadband networks, the program fund the cost of "connecting the state or regional networks to Internet2," which the Commission described as a "dedicated nationwide backbone" that "links a number of government research institutions, as well as academic, public, and private health care institutions that are repositories of medical expertise and information." *Id.* at para. 2. (Footnote omitted.)

11. The Commission then declared that "By connecting to [Internet2], health care providers at the state and local levels will have the opportunity to benefit from advanced applications in continuing education and research. In addition, a ubiquitous nationwide broadband network dedicated to health care will enhance the health care community's ability to provide a rapid and coordinated response in the event of a national crisis." *Id.*⁸

⁸Although not directly stated by the Commission to be an attribute of Internet2, since the Commission found that "real-time telehealth applications require a dedicated broadband network that is more reliable and secure than the public Internet" (Order at para. 8) (footnote omitted), it is assumed that the Commission views the network of Internet2 as also meeting these two requirements.

Reconsideration or, in the Alternative, Clarification

12. NLR appreciates the need for health care providers to have access to broadband facilities by connecting to a dedicated, nationwide backbone. However, based on a fair reading of the Order as set forth above, it appears that only connections to Internet2 will be funded under the program. NLR seeks reconsideration or clarification of the Order to also permit funding under the program for connections to NLR.

13. Both NLR and Internet2 share the same, following characteristics that the Commission seems to have deemed as essential for funding the cost of connecting state and regional networks:

- i) They are not-for-profit organizations;
- ii) They represent and serve the research and education community;
- iii) They are dedicated, nationwide backbones⁹;
- iv) They provide access to advanced telecommunications and information services;
- v) They are more reliable and stable than the public Internet; and,
- vi) They link “government research institutions, as well as academic, public, and private health care institutions that are repositories of medical expertise and information.”

As such, and for the same reasons the Commission found that connections to Internet2 qualify for funding under the program, so too do connections to NLR.

14. It follows that in the absence of funding connections to NLR, NLR will be adversely affected. NLR will not be able to fulfill part of its mission to advance and serve the research, clinical and educational goals of its members and other institutions in the field of health

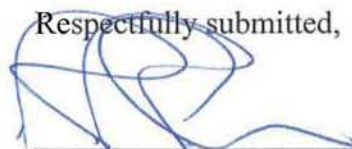
⁹Even though NLR and Internet2 share certain characteristics, NLR uniquely owns its network. NLR bought indefeasible rights of use in dark fiber and populated the fiber with equipment that it purchased. Accordingly, NLR’s network is not leased, finished capacity of an underlying carrier but is truly a network infrastructure.

care because state and regional networks will not have any incentive to connect with NLR. Consequently, NLR's ability to provide access for advanced telecommunications and information services for rural health care providers, who have a need for funding, will be diminished.

15. By the same token, rural health care will also be adversely affected. Absent funding connections to NLR, state and regional networks will not be able to take advantage of NLR's advanced infrastructure. Furthermore, existing and prospective telehealth projects that do not use or plan to use Internet2 but, instead, use or plan to use NLR, will be abandoned even though NLR clearly qualifies as an acceptable backbone.¹⁰

WHEREFORE, NLR petitions the Commission to reconsider or, in the alternative, clarify its Order by finding that although "the pilot program will provide funding to support the cost of connecting the state or regional networks to Internet2," the pilot program will also provide funding to support the cost of connecting state and regional networks to NLR.

Respectfully submitted,



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Dated: October 30, 2006

¹⁰NLR also requests, therefore, that the Commission act on this Petition as expeditiously as possible.

National LambdaRail Network Architecture



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NLR Health Care Provider Network Connections

Following is a sample list of NLR health care provider connections. They are listed by NLR member, *e.g.*, Mid-Atlantic Teasdale Partnership, and the regional networks owned and operated by that member (or by a participant in that regional optical network), *e.g.*, Virginia Network, as well as the states in which the regional optical network operates.

Mid-Atlantic Teasdale Partnership (under the aegis of the Virginia Tech Foundation) - MAX (Mid-Atlantic Crossroads) and Virginia Network (Maryland, D.C. and Virginia)

National Institute Health (NIGH)
National Library of Medicine
University of Virginia Health System (SUVS)
Virginia College of Osteopathic Medicine (COM)
Virginia Telehealth Network (VAN)
Medical College of Virginia
Virginia Department of Health (multiple locations statewide)
Virginia Department of Corrections
Virginia Community College System (39 campuses statewide active telehealth program)
Southwest Virginia Graduate Medical Education Consortium (GEM) at OVA Wise
Radford University School of Nursing
Eastern Virginia Medical School
George Mason University National Rehabilitation Hospital
Virginia Commonwealth University School of Medicine
Virginia Bioinformatics Institute
University of Virginia Health Sciences Library
Network Virginia
Electronic Villages, Inc.

Duke University (on behalf of a coalition of NC universities) – NOREEN (North Carolina Research & Education Network) (North Carolina)

Bertie Memorial Hospital
Brenner Children's Hospital (Wake Forest Baptist Medical Center)
Brook hollow Family Medical Center (Mebane)
Bunter-Creedmoor Family Medicine (Creedmoor)
Cardiovascular Center (University Health Systems of Eastern Carolina)
Children's Hospital (University Health Systems of Eastern Carolina)
Chowan Hospital
Comprehensive Cancer Center (Wake Forest Baptist Medical Center)
Duke Adult Bone Marrow Transplant Outpatient Clinic

Duke Anesthesia of Person County
Duke Asthma, Allergy and Airway Center
Duke Bone and Metabolic Disease
Duke Cardiology of Louisburg
Duke Cardiology of Lumberton
Duke Cardiology of Raleigh
Duke Cardiovascular Surgery of Danville
Duke Cardiovascular Surgery of Lumberton
Duke Center for Living
Duke Child Development and Behavioral Health Clinic
Duke Children's Cardiology of Fayetteville
Duke Children's Consultative Services of Raleigh
Duke Children's Hospital and Health Center
Duke Children's Primary Care
Duke Dermatologic Laser Center
Duke Dermatology
Duke Diet and Fitness Center
Duke Endocrinology
Duke Eye Center
Duke Eye Center at South point
Duke Eye Center of Cary
Duke Eye Center of Winston-Salem
Duke Eye of North Durham
Duke Family Medicine Center
Duke Fertility Center
Duke Gastroenterology
Duke General and Thoracic Surgery, Transplant
Duke General Surgery of Person County
Duke Gynecology-Oncology
Duke Health Center at Moreno Road (Neuroscience)
Duke Health Center at Moreno Road (Palliative Care)
Duke Health Center at North Duke Street
Duke Health Center at Pickett Road
Duke Health Center at Roxboro Road
Duke Health Center at South point
Duke Health Center of Clayton
Duke Health Center of Sanford
Duke Health Center of Smithfield
Duke Hematology/Oncology at Duke Raleigh Hospital
Duke Medicine at Brier Creek (Family Medicine)
Duke Medicine at Brier Creek (Gastrointestinal Services)
Duke Neurological Associates of Lumberton
Duke Neurology of Raleigh
Duke Orthopedics of Person County
Duke Otolaryngology, Head and Neck, ENT
Duke Perinatal Consultants of Durham Fetal Diagnostic Center

Duke Perinatal Consultants of Greensboro
 Duke Perinatal Consultants of Raleigh
 Duke Primary Care of Galloway Ridge (Pittsboro)
 Duke Psychiatry Specialty Clinic in Cary
 Duke Radiation Oncology of Raleigh
 Duke Radiology of Person County
 Duke Raleigh Cancer Center
 Duke Raleigh Hospital
 Duke Reproductive Endocrinology of Raleigh
 Duke Sports Medicine at Southpoint
 Duke Thoracic Surgery of Raleigh
 Duke University Hospital
 Duke Urgent Care Center at Lincoln Health Center
 Duke Urgent Care South
 Duke Urogynecology Consultants of Raleigh
 Duke Urology of Raleigh
 Duke Weight Loss Surgery Clinic
 Duke Women's Health Associates
 Durham Medical Center - Internal Medicine
 Durham Ob/Gyn
 Durham Pathology Associates
 Durham Pediatrics
 Durham Regional Hospital
 E K Powe Elementary Wellness Center
 Family Medical Associates of Durham
 George Watts Elementary Wellness Center
 Glenn Elementary Wellness Center
 Halifax Memorial Hospital
 Harps Mill Internal Medicine
 Harris & Smith Ob/Gyn
 Heart Center (Wake Forest Baptist Medical Center)
 Henderson Family Medicine Clinic
 Heritage Hospital
 Hillsborough Family Practice
 Hospice at The Meadowlands
 Johnson Cancer Center (Duke Oncology Network, Outpatient Department
 of Johnston Memorial Hospital)
 Lenox Baker Children's Hospital
 Leo Jenkins Cancer Center (University Health Systems of Eastern
 Carolina)
 Lumberton Children's Clinic
 Lyon Park Clinic
 Metropolitan Durham Medical Group
 Morris Cancer Clinic (Morris Building)
 North Carolina Children's Hospital
 North Carolina Memorial Hospital

North Carolina Neurosciences Hospital
North Carolina Orthopedic Clinic
North Carolina Women's Hospital
Northeast Cardiovascular
Oxford Family Physicians
Pitt County Memorial Hospital
Roanoke-Chowan Hospital
Roxboro Radiology
Scotland Cancer Treatment Center
Scotland Memorial Hospital (Laurinburg Clinic)
Southeast Regional Cancer Center
Southern High School Wellness Center
Southern Regional Area Health Education Center
Sutton Station Internal Medicine
The Outer Banks Hospital
The Preston Robert Tisch Brain Tumor Center
The Wellness Center at Meadowmont (University of North Carolina)
Timberlyne Family Medical Center
Triangle Family Practice
University of North Carolina Family Practice
University of North Carolina Heart Center at Meadowmont
University Orthopaedics and Sports Medicine
University Orthopaedics and Sports Medicine of Clayton
Wake Forest Baptist Medical Center
Wake Forest Family Physicians
Walltown Neighborhood Clinic
West Raleigh Internal Medicine
Womack Army Medical Center (Fort Bragg)

Oklahoma State Board of Regents – *ONEnet (Oklahoma)*

Atoka Memorial Hospital
Carnegie Tri-County Hospital
Choctaw Memorial Hospital
Cleveland Area Hospital
Comanche Co Memorial Hospital
Cordell Memorial Hospital
Craig General Hospital
Diagnostic Imaging Associates
Drumright Regional Hospital
Duncan Regional Hospital
Durant Family Medicine Clinic
Eastern Oklahoma Medical Center
Elk View General Hospital
Enid Family Medicine Clinic
Fairfax Memorial Hospital

Fairview Municipal Hospital.
Frederick Memorial Hospital.
Grady Memorial Hospital
Great Plains Regional Medical Center
Harmon Memorial Hospital
Harper County Hospital
Haskell City Hosp-Stigler
Henryetta Medical Center
Hillcrest Healthcare System
Holdenville General Hospital
Hurley Health Center, INC
Inphact
Integris Bass Baptist Health Center
Integris Marshall Memorial Hospital
Integris Tele-Health Network
J D McCarty Center
Jefferson County Hospital
Lane Frost Medical Center
Latimer County General Hospital
Logan Hospital
Mangum City Hospital
McCurtain Memorial Hospital
Memorial Hospital-Adair County Health Center
Mercy Health Center
Miami Integris Hospital
Oklahoma Cardiovascular Association
Oklahoma Cardiovascular Association
Oklahoma Cardiovascular Association
Oklahoma Cardiovascular Association
Oklahoma Cardiovascular Association
OSU Center for Health Sciences- Ardmore
Park View Hospital
Pauls Valley General Hospital
Pushmataha Hospital
Roger Mills Memorial Hospital
Saint Anthony Hospital
Sayre Memorial Hospital
Sequoyah Memorial Hospital
Share Medical Center
South Western Memorial Hospital
Southwest Oklahoma Family Practice Residency
St John's Medical Center-OUHSC-Dept of Dermatology
Stillwater Medical Center
Texas County Hospital
Tulsa Regional Medical Center
Valley View Regional Hospital

Wagoner Hospital/Hillcrest Healthcare
Woodward Hospital
University of Oklahoma Health Sciences Center
Oklahoma State University Center for Health Sciences

Lonestar Education and Research Network, Inc. - *LEARN (Texas)*

Baylor College of Medicine
Texas A&M University System Health Science Center
Texas Tech University System, which includes Texas Tech Health Sciences Center (Lubbock)
University of North Texas System (which includes University of North Texas Health Science Center at Ft. Worth)
University of Texas Health Center at Tyler
University of Texas Health Science Center at Houston
University of Texas Health Science Center at San Antonio
University of Texas M.D. Anderson Cancer Center (Houston)
University of Texas Medical Branch (Galveston)
University of Texas Southwestern Medical Center (Dallas)

Corporation for Education Network Initiatives in California, Inc. – *CalREN (California, Arizona and Nevada)*

Stanford Medical Center
UC Davis Medical Center
UCLA Medical Center
UCSF Medical Center
UCI Medical Center
UCSD Medical Center
USC Medical Center
University of Arizona Medical Center

University Corporation for Atmospheric Research (Under the aegis of NLR, LLC) - *Front Range GigaPop (FRGP) and Intermountain GigaPop (Colorado and Utah)*
University of Colorado Denver Health Sciences Center (UCDHSC)
University of Utah Medical School

Florida LambdaRail, LLC – *FLR (Florida)*

University of Florida:
- Shands Hospital and Clinics
- College of Medicine/Pharmacy has a DL program called PharmD
- Health Science center
Florida Atlantic University/ University of Miami
-FAU/UM Medical School

Florida State University:

- College of Medicine

Nova Southeast (NSU)

- College of Medicine

Pacific Northwest GigaPop (associated with the University of Washington) –

PNWGP (Washington, Hawaii, Alaska, Idaho, Montana, Wyoming)

The University of Washington Medical Center

Childrens Hospital

Seattle Cancer Care Alliance

Fred Hutchensin Cancer Institute

UW Physicians Clinics

Inland Northwest Health Services

Harborview Medical Center

WAMI Clinical Training—Washington

WAMI Clinical Training—Alaska

WAMI Clinical Training—Montano

WAMI Clinical Training—Idaho

Oregon Health & Science University including OHSU Hospital and Clinics

U of Hawaii Medical School

Doernbecher Childrens Hospital--Portland

Northeast LambdaRail (under the aegis of Cornell University) – *NYSErnet (New York, Rhode Island, Connecticut, Massachusetts, Vermont, New Hampshire, Maine) **

Weill Medical College in NYC

University of Rochester Strong Memorial

*Current participants in Northeast LambdaRail are limited to New York universities. Work is ongoing to secure participation by institutions in the other states.

Southern Light Rail, Inc. - *University of Georgia System Network and University of Alabama System Network (Georgia, Alabama, South Carolina)*

Medical College of Georgia

Medical University of South Carolina

University of Alabama Medical School

Example of a RON Connected to NLR – MATP/MAX/Virginia Network

KEY:

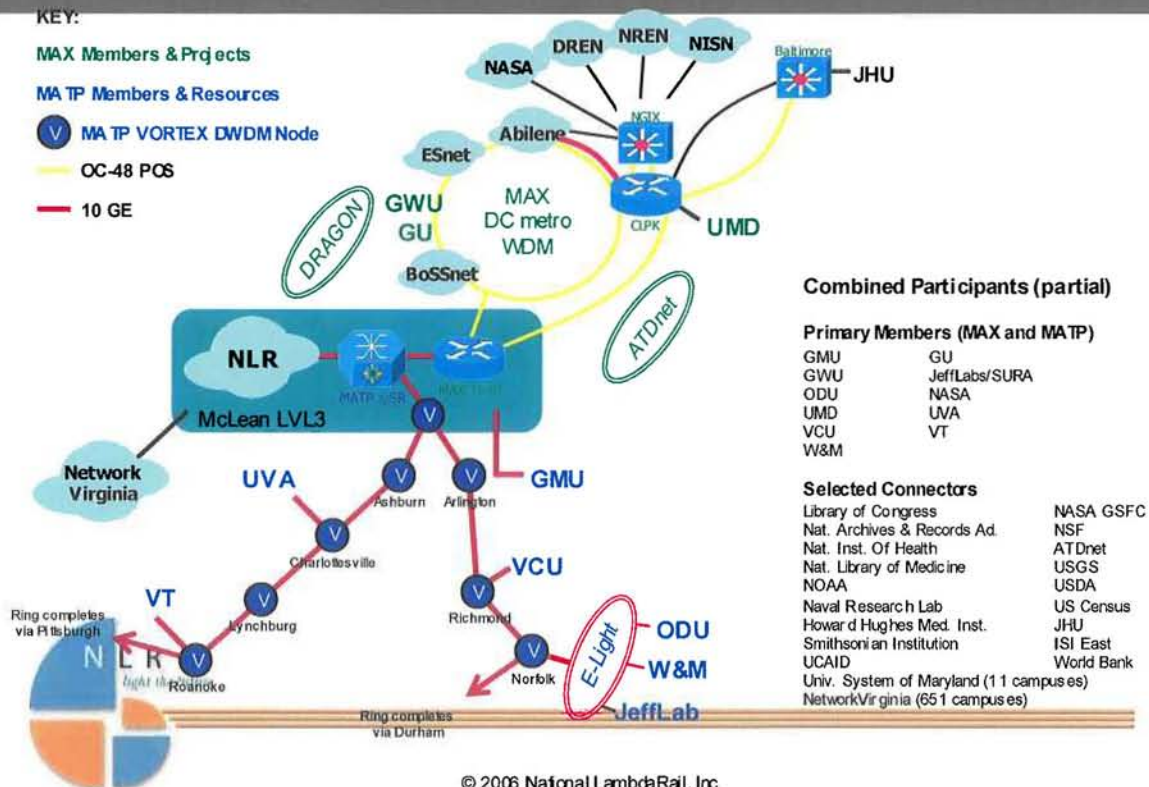
MAX Members & Projects

MATP Members & Resources

ⓧ MATP VORTEX DWDM Node

— OC-48 POS

— 10 GE



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CERTIFICATE OF SERVICE

I hereby certify that a copy of the *Petition for Reconsideration or, in the Alternative, Clarification*, was filed by electronic mail and copies sent by electronic mail or by United States first-class mail, postage prepaid, on this 30th day of October 2005, to the persons listed below.

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